Methods: Doppler recordings of 24 fetuses with isolated VSD from 18 to 38 weeks were reviewed. Nine VSD's were found large in post-natal life (symptoms, medical or surgical treatment) and 15 were restrictive (no symptom, no therapy). A control group was constituted of 104 normal fetuses. In all cases, an isthmic systolic index (ISI) was calculated as follows: (Nadir of end-systolic velocity / Peak systolic velocity) x 10. The gestational evolution of the ISI's of the 3 groups was compared.

Results: In the control group, before 27 weeks of gestation, reference values of ISI were stable at +2±2 SD. After 28 weeks, a brief end-systolic retrograde flow was observed, increasing steadily with gestation and causing a fall of ISI whose mean value reached – 3± 2 SD at 38 weeks. From 18 to 27 weeks there was no statistical difference between groups. Beyond 28 weeks, ISI of restrictive VSD fetuses followed the same fall observed in normal fetuses, whereas ISI's of large VSD's remained stable and statistically higher than values of both normal fetuses ($p<0.001$) and restrictive VSD's ($p<0.001$).

Conclusions: ISI provides a simple way to assess the relative performance of both ventricles throughout fetal life. Following the identification of a VSD, this index offers, for the first time, to fetal echocardiographers, an objective and easily accessible tool to predict the posnatal impact of the malformation.

0164

Evolution of preexcitation syndrome in children

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Previous studies reported a spontaneous disappearance of preexcitation syndrome (PS) in patients with a long accessory pathway (AP) effective refractory period (ERP) and in children <12 years (y), but stability in children >12 y with inducible SVT and short AP-ERP. The purpose of the study was to collect the data of untreated children with a PS, studied 2 times at least one year of interval.

Methods: 2 baseline electrophysiological studies (EPS) were performed within 1 to 25 years of one another (mean 6±years) in 39 children and teenagers, 17 boys, 22 girls, aged initially from 1 to 19 years (12.5±4), with overt PS. First EPS (EPS1) was indicated for syncope (n=4), atrioventricular reentrant tachycardias (AVRT)(n=17) or for asymptomatic PS (n=18). The protocol was similar, performed in control state (CS) and after isoproterenol.

Results: At EPS2, among patients studied for syncope at EPS1, 1 has still syncope, 2 have AVRT, 1 is asymptomatic. Among patients with AVRT at EPS1, 14 (82%) have still AVRT, 3 are asymptomatic. Among asymptomatic patients, 13 (72%) remain asymptomatic, 2 have AVRT, 3 have syncope. AVRT in children presenting initially with syncope or initially asymptomatic children occurred in 2/4 with inducible AVRT at EPS1. The higher rate conducted by AP was similar in CS and after isoproterenol at EPS2 (178±72bpm, 203±81) and at EPS1 (188±62, 237±83)($p<0.01$). AP-ERP's were similar in CS at EPS2 (283±68ms) and 1 (281±91.5) and tended to increase from 211±72 at ESP1 to 234±58ms at EPS2 ($p<0.07$) after isoproterenol. AP has lost anterograde conduction in 6 children with initially long AP-ERP but all 5 children with initially inducible AVRT had still inducible AVRT. Two children with initially a long AP-ERP had shorter AP-ERP at EPS2. AVRT was induced at EPS2 in asymptomatic PS with initially negative EPS in 3 children.

Conclusions: Contrary to previous studies, we did not find significant changes of clinical and electrophysiological data in children after a mean follow-up of 6±5 years. Most of children with spontaneous or inducible AVRT's at the first evaluation have still inducible AVRT's at the second evaluation. AP-ERP did not increase significantly.

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0176

Intraoperative pulmonary artery stenting for management of pulmonary artery stenosis in children with congenital heart diseases: a single center 5-year experience

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Introduction: Patients with Congenital Heart Diseases (CHD) often suffer from severe pulmonary artery (PA) stenosis. Management of PA stenosis is challenging for surgeons. The purpose of this study was to assess the results of intraoperative pulmonary artery stenting, performed additionally to, or instead of, conventional surgical angioplasty.

Methods and results: Between January 2008 and August 2013, 31 children with hypoplastic or stenosed PA, median age of 23 months (range 6 days to 15 years), and median weight of 11,8kg (range 2,8 to 63kg), underwent intraoperative placement of stents in PA. Patients had pulmonary atresia (15), tetralogy of Fallot (10), troncus arteriosus (4), and complex CHD (2). The aim of the concomitant surgical procedure was palliative surgery (10), complete repair (12), or improvement of right ventricular outflow tract after complete repair (9). A total of 42 balloon-expandable stents were deployed in left or right PA. Maximum balloon diameters ranged from 3 to 16mm (mean=9). Post-operative mortality was 9,6% (3 patients) and 2 patients did not have complete follow-up. Eighteen patients underwent angiographic control, at a mean follow-up of 15 months (± SD 10 months) after surgery. Mean PA diameter increased from 5,19 to 7,57mm ($p<0,001$). Eight patients did not have angiography to date because routine echocardiography follow-up showed patent pulmonary arteries, with low residual gradient. Two patients (7,6%) needed a reoperation for severe intra-stent stenosis. Nine patients (34,6%) had repeated dilatation, performed percutaneously or during further intervention to complete repair of their CHD.

Conclusion: Intraoperative stenting of PA is an effective option to prevent recoil and external compression. However, smaller stents seem to be at higher risk of intra-stent proliferation.

0244

Pro-arrhythmic ventricular remodeling in a porcine model of repaired tetralogy of Fallot

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Ventricular arrhythmias are frequent in patients with repaired tetralogy of Fallot but their underlying mechanisms remain unclear. In this study, ventricular electrical and structural remodelling was assessed in an animal model that mimics postoperative tetralogy of Fallot. Piglets underwent a tetralogy of Fallot repair-like surgery (rTOF N=6) or were sham-operated (Sham N=5). Following cardiac function assessment in vivo by MRI 3-4 months after surgery, pigs were euthanized and their hearts rapidly excised. Electrophysiological properties of right (RV) and left ventricles (LV) were obtained by optical mapping. Fibrosis was assessed histologically. RV dysfunction was evident while LV function remained unaltered in rTOF pigs. LV action potential duration (APD) was significantly longer on the epicardium (Sham 280±50ms; rTOF 390±76ms) and endocardium (Sham 301±20ms; rTOF 403±34ms) of rTOF animals ($P<0.05$). RV epicardial and endocardial APD were not different between rTOF and Sham RVs. LV conduction velocity (CV) was

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